c) growing said cells in said matrix *in vitro*, until a tissue-engineered biograft is formed, comprising a contracting tissue; and

d) transplanting the tissue-engineered biograft onto the myocardial tissue or myocardial scar tissue of said mammal, optionally previously removing scar or dead tissue from the site of implantation;

wherein the mammalian cells are selected from the group consisting of fetal cardiomyocytes, neonatal cardiomyocytes, adult cardiac cells, fibroblasts, smooth muscle cells, endothelial cells, skeletal myoblasts, mesenchymal stem cells and embryonic stem cells; and

wherein said polysaccharide matrix further comprises controlled-release polymeric microspheres, said microspheres being capable of releasing soluble growth factors in a controlled manner.

5. (AMENDED) A method according to claim 3, wherein the mammalian cells comprise:

a) fetal cardiomyocytes or neonatal cardiomyocytes or mixtures thereof; and

b) endothelial cells, cardiofibroblasts or smooth muscle cells or mixtures thereof.

16. (AMENDED) A tissue-engineered cardiac biograft for transplantation into myocardial tissue or myocardial scar tissue, comprising:

a porous polysaccharide matrix comprising controlled-release polymeric microspheres capable of releasing soluble growth factors; and

mammalian cells selected from the group consisting of fetal cardiomyocytes, neonatal cardiomyocytes, adult cardiac cells, fibroblasts, smooth muscle cells, endothelial cells, skeletal myoblasts, mesenchymal stem cells and embryonic stem cells;

wherein said cells have been cultured in said matrix *in vitro*.

Claims 19-21 are new.

19. (NEW) A method of preparing a three-dimensional tissue-engineered biograft comprising:

a) providing a porous polysaccharide matrix comprising microspheres capable of releasing soluble growth factors; and

b) co-culturing the porous polysaccharide matrix *in vitro* with mammalian cells selected from the group consisting of fetal caridomyocytes, neonatal cardiomyocytes, adult cardiac cells, fibroblasts, smooth muscle cells, endothelial cells, skeletal myoblasts, mesenchymal stem cells and embryonic stem cells, until a cardiac-like tissue is formed, comprising a tissue-engineered biograft.

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20. (NEW) The method of claim 19, wherein the porous polysaccharide matrix comprises an alginate polysaccharide.

21. (NEW) The method of claim 19, wherein the porous polysaccharide matrix generates a scaffold.